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New Jersey
ACCUTEST
LABORATORIES

12/19/11

Technical Report for

Anderson, Mulholland & Associates

BMSMC, Building 5 Area, PR

SM04.00.06

Accutest Job Number: JA94117

Sampling Dates: 12/06/11 - 12/07/11

Report to:

Anderson, Mulholland & Associates

ttaylor@amaiconsult.com

ATTN: Terry Taylor

Total number of pages in report: **556**

ACCREDITED IN ACCORDANCE WITH nelac

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

David N. Speis
VP, Laboratory Director

Client Service contact: Tammy McCloskey 732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, DE, FL, IL, IN, KS, KY, LA, MA, MD, MI, MT, NC, PA, RI, SC, TN, VA, WV

Test results relate only to samples analyzed.

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Table of Contents

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Sample Summary

Anderson, Mulholland & Associates

Job No: JA94117

BMSMC, Building 5 Area, PR
Project No: SM04.00.06

Sample Number	Collected Date	Time	By	Received	Matrix Code	Matrix Type	Client Sample ID
JA94117-1	12/06/11	13:50	TT	12/08/11	SO	Soil	I-3 (5-6)
JA94117-2	12/06/11	14:50	TT	12/08/11	SO	Soil	I-2 (10-10.5)
JA94117-3	12/06/11	16:50	TT	12/08/11	SO	Soil	I-7 (10-11)
JA94117-4	12/07/11	10:15	TT	12/08/11	SO	Soil	I-8 (14-15)
JA94117-5	12/07/11	10:15	TT	12/08/11	SO	Soil	I-8 (14-15) DUP
JA94117-6	12/07/11	11:05	TT	12/08/11	SO	Soil	I-9 (8.5-9.5)
JA94117-7	12/07/11	11:05	TT	12/08/11	AQ	Trip Blank Soil	TB 120711

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

CASE NARRATIVE / CONFORMANCE SUMMARY

Client: Anderson, Mulholland & Associates **Job No** JA94117

Site: BMSMC, Building 5 Area, PR **Report Date** 12/15/2011 3:33:11 P

On 12/08/2011, 6 Sample(s), 1 Trip Blank(s) and 0 Field Blank(s) were received at Accutest Laboratories at a temperature of 3 C. Samples were intact and chemically preserved, unless noted below. An Accutest Job Number of JA94117 was assigned to the project. Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Volatiles by GCMS By Method SW846 8260B

Matrix: AQ **Batch ID:** V4B588

- All samples were analyzed within the recommended method holding time.
- Sample(s) JA93776-3MS, JA93776-3MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Matrix: SO **Batch ID:** VD7745

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JA94117-1MS, JA94117-1MSD were used as the QC samples indicated.

Matrix: SO **Batch ID:** VD7746

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JA93637-1MS, JA93637-1MSD were used as the QC samples indicated.

Matrix: SO **Batch ID:** VY5057

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JA94124-3MS, JA94124-4DUP were used as the QC samples indicated.
- Matrix Spike Recovery(s) for Ethylbenzene, Toluene are outside control limits. Outside control limits due to matrix interference.
- RPD(s) for Duplicate for Benzene, Ethylbenzene are outside control limits for sample JA94124-4DUP. High RPD due to possible sample analyzed from different vials.

Matrix: SO **Batch ID:** VY5058

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JA94077-1MS, JA94077-1MSD were used as the QC samples indicated.
- JA94077-1MSD for Dibromofluoromethane: Outside control limits due to matrix interference.
- JA94077-1MS for Dibromofluoromethane: Outside control limits due to matrix interference.

Volatiles by GC By Method SW846-8015 (DAI)

Matrix: AQ	Batch ID: GGH3919

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.

Matrix: SO	Batch ID: GGH3918

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JA93968-1MS, JA93968-1MSD were used as the QC samples indicated.
- JA94117-3 for Hexanol: Outside control limits due to matrix interference.

Wet Chemistry By Method SM18 2540G

Matrix: SO	Batch ID: GN59203

- The data for SM18 2540G meets quality control requirements.

Accutest certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting Accutest's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

Accutest Laboratories is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. Data release is authorized by Accutest Laboratories indicated via signature on the report cover

Sample Results

Report of Analysis

Raw Data: D190254.D D190283.D

Accutest LabLink@649183 09:01 19-Dec-2011

Report of Analysis

Client Sample ID:	I-3 (5-6)		
Lab Sample ID:	JA94117-1	**Date Sampled:**	12/06/11
Matrix:	SO - Soil	**Date Received:**	12/08/11
Method:	SW846 8260B SW846 5035	**Percent Solids:**	81.3
Project:	BMSMC, Building 5 Area, PR		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	D190254.D	1	12/13/11	ET	12/09/11 09:00	n/a	VD7745
Run #2	D190283.D	1	12/13/11	ET	12/09/11 09:00	n/a	VD7746

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.5 g	5.0 ml	100 ul
Run #2	5.5 g	5.0 ml	2.5 ul

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	11500	670	450	ug/kg	
71-43-2	Benzene	19.2	67	9.0	ug/kg	J
100-41-4	Ethylbenzene	191000 [a]	2700	400	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	5260	340	180	ug/kg	
108-88-3	Toluene	444000 [a]	2700	1000	ug/kg	
1330-20-7	Xylene (total)	736000 [a]	2700	500	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%	103%	67-131%
17060-07-0	1,2-Dichloroethane-D4	103%	100%	66-130%
2037-26-5	Toluene-D8	108%	108%	76-125%
460-00-4	4-Bromofluorobenzene	101%	98%	53-142%

(a) Result is from Run# 2

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest LabLink@649183 09:01 19-Dec-2011

Report of Analysis

Client Sample ID: I-3 (5-6)
Lab Sample ID: JA94117-1
Matrix: SO - Soil
Method: SW846-8015 (DAI)
Project: BMSMC, Building 5 Area, PR

Date Sampled: 12/06/11
Date Received: 12/08/11
Percent Solids: 81.3

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GH85765.D	1	12/09/11	XPL	n/a	n/a	GGH3918
Run #2							

	Initial Weight
Run #1	5.0 g
Run #2	

CAS No.	Compound	Result	RL	MDL	Units	Q
67-63-0	Isopropyl Alcohol	57000	120	47	ug/kg	
67-56-1	Methanol	0.00	250	63	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
111-27-3	Hexanol	100%		58-137%
111-27-3	Hexanol	62%		58-137%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest LabLink@649183 09:01 19-Dec-2011

Report of Analysis

Client Sample ID:	I-2 (10-10.5)		
Lab Sample ID:	JA94117-2	**Date Sampled:**	12/06/11
Matrix:	SO - Soil	**Date Received:**	12/08/11
Method:	SW846 8260B SW846 5035	**Percent Solids:**	79.4
Project:	BMSMC, Building 5 Area, PR		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	D190284.D	1	12/13/11	ET	12/09/11 09:00	n/a	VD7746
Run #2	D190255.D	1	12/13/11	ET	12/09/11 09:00	n/a	VD7745

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	4.8 g	5.0 ml	10.0 ul
Run #2	4.8 g	5.0 ml	100 ul

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	2850 [a]	790	520	ug/kg	
71-43-2	Benzene	ND [a]	79	10	ug/kg	
100-41-4	Ethylbenzene	57500	790	120	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	106000	3900	2100	ug/kg	
108-88-3	Toluene	54900	790	300	ug/kg	
1330-20-7	Xylene (total)	229000	790	140	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	102%	100%	67-131%
17060-07-0	1,2-Dichloroethane-D4	100%	101%	66-130%
2037-26-5	Toluene-D8	110%	112%	76-125%
460-00-4	4-Bromofluorobenzene	97%	100%	53-142%

(a) Result is from Run# 2

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest LabLink@649183 09:01 19-Dec-2011

Report of Analysis

Client Sample ID:	I-2 (10-10.5)		
Lab Sample ID:	JA94117-2	**Date Sampled:**	12/06/11
Matrix:	SO - Soil	**Date Received:**	12/08/11
Method:	SW846-8015 (DAI)	**Percent Solids:**	79.4
Project:	BMSMC, Building 5 Area, PR		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GH85773.D	1	12/09/11	XPL	n/a	n/a	GGH3918
Run #2							

	Initial Weight
Run #1	5.1 g
Run #2	

CAS No.	Compound	Result	RL	MDL	Units	Q
67-63-0	Isopropyl Alcohol	2850	120	47	ug/kg	
67-56-1	Methanol	3320	250	63	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
111-27-3	Hexanol	105%		58-137%
111-27-3	Hexanol	94%		58-137%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Raw Data: D190281.D D190256.D D190282.D

Accutest LabLink@649183 09:01 19-Dec-2011

Report of Analysis

Client Sample ID:	I-7 (10-11)		
Lab Sample ID:	JA94117-3	**Date Sampled:**	12/06/11
Matrix:	SO - Soil	**Date Received:**	12/08/11
Method:	SW846 8260B SW846 5035	**Percent Solids:**	85.9
Project:	BMSMC, Building 5 Area, PR		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	D190281.D	1	12/13/11	ET	12/09/11 09:00	n/a	VD7746
Run #2	D190256.D	1	12/13/11	ET	12/09/11 09:00	n/a	VD7745
Run #3	D190282.D	5	12/13/11	ET	12/09/11 09:00	n/a	VD7746

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.2 g	5.0 ml	2.0 ul
Run #2	5.2 g	5.0 ml	100 ul
Run #3	5.2 g	5.0 ml	1.0 ul

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	127000	32000	21000	ug/kg	
71-43-2	Benzene	33.5 [a]	64	8.5	ug/kg	J
100-41-4	Ethylbenzene	1320000 [b]	32000	4700	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	1080000 [b]	160000	84000	ug/kg	
108-88-3	Toluene	64100	3200	1200	ug/kg	
1330-20-7	Xylene (total)	4900000 [b]	32000	5900	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Run# 3	Limits
1868-53-7	Dibromofluoromethane	102%	98%	103%	67-131%
17060-07-0	1,2-Dichloroethane-D4	100%	99%	101%	66-130%
2037-26-5	Toluene-D8	110%	113%	112%	76-125%
460-00-4	4-Bromofluorobenzene	97%	104%	101%	53-142%

(a) Result is from Run# 2
(b) Result is from Run# 3

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Raw Data: GH85774.D GH85767.D

Accutest LabLink@649183 09:01 19-Dec-2011

Report of Analysis

Client Sample ID:	I-7 (10-11)		
Lab Sample ID:	JA94117-3	**Date Sampled:**	12/06/11
Matrix:	SO - Soil	**Date Received:**	12/08/11
Method:	SW846-8015 (DAI)	**Percent Solids:**	85.9
Project:	BMSMC, Building 5 Area, PR		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GH85774.D	1	12/09/11	XPL	n/a	n/a	GGH3918
Run #2	GH85767.D	1	12/09/11	XPL	n/a	n/a	GGH3918

	Initial Weight
Run #1	0.50 g
Run #2	5.0 g

CAS No.	Compound	Result	RL	MDL	Units	Q
67-63-0	Isopropyl Alcohol	500000	1200	440	ug/kg	
67-56-1	Methanol	1050000	2300	600	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
111-27-3	Hexanol	133%	367% [a]	58-137%
111-27-3	Hexanol	133%	262% [a]	58-137%

(a) Outside control limits due to matrix interference.

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Raw Data: Y118403.D

Accutest LabLink@649183 09:01 19-Dec-2011

Report of Analysis

Client Sample ID:	I-8 (14-15)		
Lab Sample ID:	JA94117-4	**Date Sampled:**	12/07/11
Matrix:	SO - Soil	**Date Received:**	12/08/11
Method:	SW846 8260B SW846 5035	**Percent Solids:**	84.7
Project:	BMSMC, Building 5 Area, PR		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y118403.D	1	12/12/11	RS	12/09/11 09:00	n/a	VY5058
Run #2							

	Initial Weight
Run #1	4.9 g
Run #2	

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	15.0	12	8.0	ug/kg	
71-43-2	Benzene	1.5	1.2	0.16	ug/kg	
100-41-4	Ethylbenzene	ND	1.2	0.18	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	6.0	3.2	ug/kg	
108-88-3	Toluene	ND	1.2	0.46	ug/kg	
1330-20-7	Xylene (total)	2.9	1.2	0.22	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	91%		67-131%
17060-07-0	1,2-Dichloroethane-D4	90%		66-130%
2037-26-5	Toluene-D8	97%		76-125%
460-00-4	4-Bromofluorobenzene	95%		53-142%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Raw Data: GH85768.D

Accutest LabLink@649183 09:01 19-Dec-2011

Report of Analysis

Client Sample ID:	I-8 (14-15)		
Lab Sample ID:	JA94117-4	**Date Sampled:**	12/07/11
Matrix:	SO - Soil	**Date Received:**	12/08/11
Method:	SW846-8015 (DAI)	**Percent Solids:**	84.7
Project:	BMSMC, Building 5 Area, PR		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GH85768.D	1	12/09/11	XPL	n/a	n/a	GGH3918
Run #2							

	Initial Weight
Run #1	5.1 g
Run #2	

CAS No.	Compound	Result	RL	MDL	Units	Q
67-63-0	Isopropyl Alcohol	ND	120	44	ug/kg	
67-56-1	Methanol	ND	230	59	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
111-27-3	Hexanol	80%		58-137%
111-27-3	Hexanol	133%		58-137%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Raw Data: Y118404.D

Accutest LabLink@649183 09:01 19-Dec-2011

Report of Analysis

Client Sample ID:	I-8 (14-15) DUP		
Lab Sample ID:	JA94117-5	**Date Sampled:**	12/07/11
Matrix:	SO - Soil	**Date Received:**	12/08/11
Method:	SW846 8260B SW846 5035	**Percent Solids:**	85.8
Project:	BMSMC, Building 5 Area, PR		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y118404.D	1	12/12/11	RS	12/09/11 09:00	n/a	VY5058
Run #2							

	Initial Weight
Run #1	4.6 g
Run #2	

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	9.7	13	8.4	ug/kg	J
71-43-2	Benzene	1.3	1.3	0.17	ug/kg	
100-41-4	Ethylbenzene	ND	1.3	0.19	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	6.3	3.3	ug/kg	
108-88-3	Toluene	ND	1.3	0.48	ug/kg	
1330-20-7	Xylene (total)	0.88	1.3	0.23	ug/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	91%		67-131%
17060-07-0	1,2-Dichloroethane-D4	91%		66-130%
2037-26-5	Toluene-D8	97%		76-125%
460-00-4	4-Bromofluorobenzene	94%		53-142%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Raw Data: GH85769.D

Accutest LabLink@649183 09:01 19-Dec-2011

Report of Analysis

Client Sample ID:	I-8 (14-15) DUP		
Lab Sample ID:	JA94117-5	**Date Sampled:**	12/07/11
Matrix:	SO - Soil	**Date Received:**	12/08/11
Method:	SW846-8015 (DAI)	**Percent Solids:**	85.8
Project:	BMSMC, Building 5 Area, PR		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GH85769.D	1	12/09/11	XPL	n/a	n/a	GGH3918
Run #2							

	Initial Weight
Run #1	5.0 g
Run #2	

CAS No.	Compound	Result	RL	MDL	Units	Q
67-63-0	Isopropyl Alcohol	ND	120	44	ug/kg	
67-56-1	Methanol	ND	230	60	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
111-27-3	Hexanol	85%		58-137%
111-27-3	Hexanol	104%		58-137%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Raw Data: Y118384.D D190280.D

Accutest LabLink@649183 09:01 19-Dec-2011

Report of Analysis

Client Sample ID:	I-9 (8.5-9.5)		
Lab Sample ID:	JA94117-6	**Date Sampled:**	12/07/11
Matrix:	SO - Soil	**Date Received:**	12/08/11
Method:	SW846 8260B SW846 5035	**Percent Solids:**	76.5
Project:	BMSMC, Building 5 Area, PR		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y118384.D	1	12/10/11	RS	12/09/11 09:00	n/a	VY5057
Run #2	D190280.D	1	12/13/11	ET	12/09/11 09:00	n/a	VD7746

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.5 g		
Run #2	5.6 g	5.0 ml	100 ul

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	12	7.9	ug/kg	
71-43-2	Benzene	0.48	1.2	0.16	ug/kg	J
100-41-4	Ethylbenzene	52.3	1.2	0.18	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.9	3.1	ug/kg	
108-88-3	Toluene	ND	1.2	0.45	ug/kg	
1330-20-7	Xylene (total)	2660 [a]	74	14	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	92%	101%	67-131%
17060-07-0	1,2-Dichloroethane-D4	94%	100%	66-130%
2037-26-5	Toluene-D8	96%	112%	76-125%
460-00-4	4-Bromofluorobenzene	92%	100%	53-142%

(a) Result is from Run# 2

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Raw Data: GH85772.D

Accutest LabLink@649183 09:01 19-Dec-2011

Report of Analysis

Client Sample ID:	I-9 (8.5-9.5)		
Lab Sample ID:	JA94117-6	**Date Sampled:**	12/07/11
Matrix:	SO - Soil	**Date Received:**	12/08/11
Method:	SW846-8015 (DAI)	**Percent Solids:**	76.5
Project:	BMSMC, Building 5 Area, PR		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GH85772.D	1	12/09/11	XPL	n/a	n/a	GGH3918
Run #2							

	Initial Weight
Run #1	5.0 g
Run #2	

CAS No.	Compound	Result	RL	MDL	Units	Q
67-63-0	Isopropyl Alcohol	ND	130	50	ug/kg	
67-56-1	Methanol	ND	260	67	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
111-27-3	Hexanol	85%		58-137%
111-27-3	Hexanol	98%		58-137%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Raw Data: 4B13607.D

Accutest LabLink@649183 09:01 19-Dec-2011

Report of Analysis

Client Sample ID:	TB 120711		
Lab Sample ID:	JA94117-7	**Date Sampled:**	12/07/11
Matrix:	AQ - Trip Blank Soil	**Date Received:**	12/08/11
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	BMSMC, Building 5 Area, PR		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4B13607.D	1	12/12/11	RS	n/a	n/a	V4B588
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	7.6	ug/l	
71-43-2	Benzene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.21	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	1.2	ug/l	
108-88-3	Toluene	ND	1.0	0.15	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.17	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	97%		77-120%
17060-07-0	1,2-Dichloroethane-D4	92%		70-127%
2037-26-5	Toluene-D8	92%		79-120%
460-00-4	4-Bromofluorobenzene	85%		76-118%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Raw Data: GH85777.D

Accutest LabLink@649183 09:01 19-Dec-2011

Report of Analysis

Client Sample ID:	TB 120711		
Lab Sample ID:	JA94117-7	**Date Sampled:**	12/07/11
Matrix:	AQ - Trip Blank Soil	**Date Received:**	12/08/11
Method:	SW846-8015 (DAI)	**Percent Solids:**	n/a
Project:	BMSMC, Building 5 Area, PR		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GH85777.D	1	12/09/11	XPL	n/a	n/a	GGH3919
Run #2							

CAS No.	Compound	Result	RL	MDL	Units	Q
67-63-0	Isopropyl Alcohol	ND	100	30	ug/l	
67-56-1	Methanol	ND	200	46	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
111-27-3	Hexanol	97%		48-150%
111-27-3	Hexanol	95%		48-150%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- Sample Tracking Chronicle
- Internal Chain of Custody

SLC
STB

PN 1

CHAIN OF CUSTODY

PAGE 1 OF 1

ACCUTEST Laboratories

2235 Route 130, Dayton, NJ 08810
TEL. 732-329-0200 FAX 732-329-3499/3480
www.accutest.com

FEDEX Tracking # 873744211936 | Bottle Order Control # | Accutest Job # JA94117

Client / Reporting Information	Project Information	Requested Analysis (see TEST CODE sheet)	Matrix Codes
Company Name: Anderson Mulholland Assoc., Inc.	Project Name: Bristol-Myers Squibb, Humacao, PR		DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge SED-Sediment OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe FB-Field Blank EB-Equipment Blank RB- Rinse Blank TB-Trip Blank
Street Address: 110 Corporate Park.	Street:		
City: White Plains, State: NY, Zip: 10604	City, State:	Billing Information (if different from Report to)	
Project Contact: Terry Taylor, E-mail:	Project #: Building 5	Company Name:	
Phone #: 914-251-0400, Ext. 309, Fax #:	Client Purchase Order #:	Street Address:	
Sampler(s) Name(s): Terry Taylor, Phone #:	Project Manager:	City, State, Zip:	
		Attention:	

Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	Number of preserved Bottles: HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	Ethylbenzene, benzene, toluene, xylenes, MEK, acetone by 8260B	Methanol and IPA by 8015B	% Solids	LAB USE ONLY
-1	I-3 (5-6)		12/6/11	1350	TT	soil	5					2			3	X	X	X	12/8/11 ESI 1966 4110 1405 4972 816
-2	I-2 (10-10.5)			1450			5					2			3	X	X	X	
-3	I-7 (10-11)			1650			5					2			3	X	X	X	
-4	I-8 (14-15)		12/7/11	1015			5					2			3	X	X	X	
-5	I-8 (14-15) DUP			1015			5					2			3	X	X	X	
-6	I-9 (8.5-9.5)			1105			5					2			3	X	X	X	
-7	TB 120711			1105	Lab	Liquid	2	2								X	X		

Turnaround Time (Business days)

- [ ] Std. 15 Business Days
- [ ] Std. 10 Business Days (by Contract only)
- [ ] 10 Day *RUSH*
- [ ] 5 Day *RUSH*
- [x] 3 Day *EMERGENCY*
- [ ] 2 Day *EMERGENCY*
- [ ] 1 Day *EMERGENCY*

Emergency & Rush T/A data available VIA Labtink

Approved By (Accutest PM) / Date:

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] FULLT1 (Level 3+4)
- [ ] NJ Reduced
- [ ] Commercial "C"
- [ ] NYASP Category A
- [ ] NYASP Category B
- [ ] State Forms
- [ ] EDD Format
- [ ] Other

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary
NJ Reduced = Results + QC Summary + Partial Raw data

Comments / Special Instructions

873744211936

* FILLED 6/13/11 @ 0800 (AD 12/8/11

Sample Custody must be documented below each time samples change possession, including courier delivery.

	Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1		12/7/2011 1200	FEDEX	FEDEX	12/8/11 1900	
3						
5				Custody Seal # 434	Intact / Not intact	Preserved where applicable: X

On Ice: X | Cooler Temp: 3.0°C

B

4.1 4

MEMORANDUM

TO: Terry Taylor
Anderson, Mulholland and Associates

DATE: December 20, 2011

FROM: R. Infante

FILE: JA94117

RE: Data Validation
BMSMC: Building 5 Area, PR
SM04.00.06
Accutest Job Number: JA94117

SUMMARY

Full validation was performed on the data for six (6) soil samples and one (1) trip blank analyzed for selected volatile organic compounds using EPA method SW-846 8260B and six (6) soil samples and one (1) trip blank analyzed for alcohols (methanol and isopropyl alcohol) by EPA method SW-846 8015 (DAI). The samples were collected at the BMSMC Building 5 Area in Humacao, PR on December 6 and 7, 2011 and submitted to Accutest Laboratories that analyzed and reported the results under delivery group (SDG) JA94117.

The sample results were assessed according to USEPA data validation guidance documents in the following order of precedence: "*USEPA Region 2, SOP HW-24, Standard Operating Procedure for the Validation of Organic Data Acquired using SW-846 Method 8260B (August 2009-Revision 2)*, the *USEPA National Functional Guidelines for Low Concentration Organic Data Review (August 2009-Revision 2)*, the *USEPA National Functional Guidelines for Organic Data Review for Low Concentration (SOP HW-13, August 2009-Revision 3)* (noted herein as the "primary guidance document"). Also, QC criteria from *"Test Methods for Evaluating Solid Waste, Physical/Chemical Methods SW-846 (Final Update III, December 1996),"* are utilized. The guidelines were modified to accommodate the non-CLP methodology. The QC criteria and data validation actions listed on the data review worksheets are from the primary guidance document, unless otherwise noted.

In general the data is valid as reported and may be used for decision making purposes. The data results are acceptable for use. Some of the results were qualified.

SAMPLES

The samples included in the review are listed below

FIELD SAMPLE ID	LABORATORY ID	ANALYSIS
I-3 (5 - 6)	JA94117-1	VOCs, ALCOHOLS
I-2 (10 - 10.5)	JA94117-2	VOCs, ALCOHOLS
I-7 (10 - 11)	JA94117-3	VOCs, ALCOHOLS
I-8 (14 - 15)	JA94117-4	VOCs, ALCOHOLS
I-8 (14 - 15)DUP	JA94117-5	VOCs, ALCOHOLS
I-9 (8.5 - 9.5)	JA94117-6	VOCs, ALCOHOLS
TB120711	JA94117-7	VOCs, ALCOHOLS

REVIEW ELEMENTS

Sample data were reviewed for the following parameters, where applicable to the method

- Agreement of analysis conducted with chain of custody (COC) form
- Holding time and sample preservation
- Gas chromatography/mass spectrometry (GC/MS) tunes
- Initial and continuing calibrations
- Method blanks/trip blanks/field blank
- Surrogate spike recovery
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Internal standard performance
- Field duplicate results
- Laboratory control sample/laboratory control sample duplicate (LCS/LCSD) results
- Quantitation limits and sample results

DISCUSSION

Agreement of Analysis Conducted with COC Request

Sample reports corresponded to the analytical request designated on the chain-of-custody form.

Holding Times and Sample Preservation

The cooler temperatures were within the QC acceptance criteria of 4°C ± 2°C.

Sample preservation was acceptable.

Samples analyzed within method recommended holding time.

GC/MS Tunes

The frequency and abundance of bromofluorobenzene (BFB) tunes were within the QC acceptance criteria. All samples were analyzed within the tuning criteria associated with the method.

Initial and Continuing Calibrations

VOCs

The percent relative standard deviations (%RSDs) and response factors (RFs) of all target analytes were within the QC acceptance criteria in the initial calibration. Correlation coefficients (r^2) of target analytes were within the QC acceptance criteria. Ongoing accuracy of the instrument was determined by the analysis of a continuing calibration standard. All initial and continuing calibrations met the acceptance criteria except for the following analytes:

DATE	LAB FILE ID#	CRITERIA OUT: %D	COMPOUND	AFFECTED SAMPLES
12/012/11	cc435-20	23.6	MIBK	JA94117-7

Qualify results (J) in affected samples.

Alcohols

The percent relative standard deviations (%RSDs) and response factors (RFs) of all target analytes were within the QC acceptance criteria in the initial calibration. Correlation coefficients (r^2) of target analytes were within the QC acceptance criteria. Ongoing accuracy of the instrument was determined by the analysis of a continuing calibration standard. All initial and continuing calibrations met the acceptance criteria

Method Blank/Trip Blank/Field Blank

Target analytes were not detected in laboratory method blanks for VOCs and alcohols.

No target analytes (VOCs and alcohols) in the trip blank associated with this data set.

No field/equipment blanks associated with this data set.

Surrogate Spike Recovery

The surrogate recoveries were within the laboratory QC acceptance limits in all samples analyzed for VOCs and alcohols except for the following:

VOCs

- DBFM outside control limits in sample JA94077-1MS/1-MSD: 23/28 % recovery; control limit 67 - 137 %. No action taken; QC sample.

Alcohols

- Hexanol outside control limit in sample JA94117-3: 367/262 % recovery; control limit 58 - 137 %. No action taken; recoveries within control limits in Run #1.

MS/MSD

VOCs

Matrix spike was performed on samples JA94117-7MS/-7MSD (Aqueous); JA94124-3MS/-3MSD (Soil); JA94077-1MS/-1MSD (Soil); JA94117-1MS/-1MSD (Soil); JA93637-1MS/-1MSD (Soil); and JA943776-3MS/-3MSD. Recoveries and RPD for the MS/MSD were within laboratory control except for the following:

MS OR MSD	COMPOUND	% R	RPD	QC LIMITS	ACTION
JA94124-3MS/-3MSD					
MS	Ethylbenzene	172		20 - 144	Qualify results (J)
MS	Toluene	146		29 - 138	Qualify_results_(J)

Affected sample: JA94117-6

Alcohols

Matrix spike was performed on samples JA93968-1MS/-1MSD (Soil). Recoveries and RPD for the MS/MSD were within laboratory control limits.

Internal Standard Performance

VOCs

Samples were spiked with the method specified internal standard. Internal standard performance met the QC acceptance criteria in all sample analyses.

Laboratory/Field Duplicate Results

Field duplicate associated with data package were samples JA94117-4/JA94117-5 (VOCs and alcohols). RPD results were within laboratory and generally acceptable control limits except for the following:

- Xylenes (Total) outside 50 % RPD control limit; no action taken because one of the two xylene concentration less than 5 X sample quantitation limit.

Laboratory duplicate associated with this data package were samples JA94124-4/-4 DUP. RPD results were within laboratory and generally acceptable control limits except for the following:

- Benzene 84 % RPD; control limit 50 %; no action taken because one of the two benzene concentration less than 5 X sample quantitation limit.
- Ethylbenzene 200 % RPD; control limit 50 %; no action taken because one of the two benzene concentration less than 5 X sample quantitation limit.

LCS/LCSD Results

VOCs

The laboratory analyzed one LCS (blank spike) associated with each matrix from this data set. The % recoveries of all spiked analytes were within the laboratory QC acceptance limits.

Alcohols

The laboratory analyzed one LCS (blank spike) associated with each matrix from this data set. The % recoveries of all spiked analytes were within the laboratory QC acceptance limits.

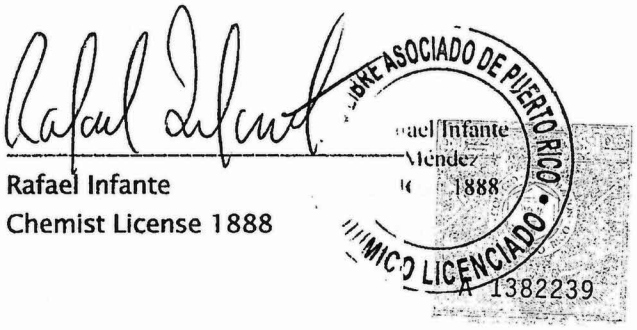
Quantitation Limits and Sample Results

Dilutions were not required with this data set except for the following samples (alcohols):

Calculations were spot checked.

Certification

The following samples JA94117-1; JA94117-2; JA94117-3; JA94117-4; JA94117-5; JA94117-6; and JA94117-7 were analyzed following standard procedures accepted by regulatory agencies. The quality control requirements met the methods criteria except in the occasions described in this document. The results are valid.



Rafael Infante
Chemist License 1888

Report of Analysis

Client Sample ID:	I-3 (5-6)		
Lab Sample ID:	JA94117-1	**Date Sampled:**	12/06/11
Matrix:	SO - Soil	**Date Received:**	12/08/11
Method:	SW846 8260B SW846 5035	**Percent Solids:**	81.3
Project:	BMSMC, Building 5 Area, PR		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	D190254.D	1	12/13/11	ET	12/09/11 09:00	n/a	VD7745
Run #2	D190283.D	1	12/13/11	ET	12/09/11 09:00	n/a	VD7746

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.5 g	5.0 ml	100 ul
Run #2	5.5 g	5.0 ml	2.5 ul

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	11500	670	450	ug/kg	
71-43-2	Benzene	19.2	67	9.0	ug/kg	J
100-41-4	Ethylbenzene	191000 [a]	2700	400	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	5260	340	180	ug/kg	
108-88-3	Toluene	444000 [a]	2700	1000	ug/kg	
1330-20-7	Xylene (total)	736000 [a]	2700	500	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%	103%	67-131%
17060-07-0	1,2-Dichloroethane-D4	103%	100%	66-130%
2037-26-5	Toluene-D8	108%	108%	76-125%
460-00-4	4-Bromofluorobenzene	101%	98%	53-142%

(a) Result is from Run# 2

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	I-3 (5-6)		
Lab Sample ID:	JA94117-1	**Date Sampled:**	12/06/11
Matrix:	SO - Soil	**Date Received:**	12/08/11
Method:	SW846-8015 (DAI)	**Percent Solids:**	81.3
Project:	BMSMC, Building 5 Area, PR		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GH85765.D	1	12/09/11	XPL	n/a	n/a	GGH3918
Run #2							

	Initial Weight
Run #1	5.0 g
Run #2	

CAS No.	Compound	Result	RL	MDL	Units	Q
67-63-0	Isopropyl Alcohol	57000	120	47	ug/kg	
67-56-1	Methanol	0.00	250	63	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
111-27-3	Hexanol	100%		58-137%
111-27-3	Hexanol	62%		58-137%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	I-2 (10-10.5)		
Lab Sample ID:	JA94117-2	**Date Sampled:**	12/06/11
Matrix:	SO - Soil	**Date Received:**	12/08/11
Method:	SW846 8260B SW846 5035	**Percent Solids:**	79.4
Project:	BMSMC, Building 5 Area, PR		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	D190284.D	1	12/13/11	ET	12/09/11 09:00	n/a	VD7746
Run #2	D190255.D	1	12/13/11	ET	12/09/11 09:00	n/a	VD7745

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	4.8 g	5.0 ml	10.0 ul
Run #2	4.8 g	5.0 ml	100 ul

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	2850 [a]	790	520	ug/kg	
71-43-2	Benzene	ND [a]	79	10	ug/kg	
100-41-4	Ethylbenzene	57500	790	120	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	106000	3900	2100	ug/kg	
108-88-3	Toluene	54900	790	300	ug/kg	
1330-20-7	Xylene (total)	229000	790	140	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	102%	100%	67-131%
17060-07-0	1,2-Dichloroethane-D4	100%	101%	66-130%
2037-26-5	Toluene-D8	110%	112%	76-125%
460-00-4	4-Bromofluorobenzene	97%	100%	53-142%

(a) Result is from Run# 2

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	I-2 (10-10.5)		
Lab Sample ID:	JA94117-2	**Date Sampled:**	12/06/11
Matrix:	SO - Soil	**Date Received:**	12/08/11
Method:	SW846-8015 (DAI)	**Percent Solids:**	79.4
Project:	BMSMC, Building 5 Area, PR		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GH85773.D	1	12/09/11	XPL	n/a	n/a	GGH3918
Run #2							

	Initial Weight
Run #1	5.1 g
Run #2	

CAS No.	Compound	Result	RL	MDL	Units	Q
67-63-0	Isopropyl Alcohol	2850	120	47	ug/kg	
67-56-1	Methanol	3320	250	63	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
111-27-3	Hexanol	105%		58-137%
111-27-3	Hexanol	94%		58-137%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	I-7 (10-11)		
Lab Sample ID:	JA94117-3	**Date Sampled:**	12/06/11
Matrix:	SO - Soil	**Date Received:**	12/08/11
Method:	SW846 8260B SW846 5035	**Percent Solids:**	85.9
Project:	BMSMC, Building 5 Area, PR		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	D190281.D	1	12/13/11	ET	12/09/11 09:00	n/a	VD7746
Run #2	D190256.D	1	12/13/11	ET	12/09/11 09:00	n/a	VD7745
Run #3	D190282.D	5	12/13/11	ET	12/09/11 09:00	n/a	VD7746

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.2 g	5.0 ml	2.0 ul
Run #2	5.2 g	5.0 ml	100 ul
Run #3	5.2 g	5.0 ml	1.0 ul

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	127000	32000	21000	ug/kg	
71-43-2	Benzene	33.5 [a]	64	8.5	ug/kg	J
100-41-4	Ethylbenzene	1320000 [b]	32000	4700	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	1080000 [b]	160000	84000	ug/kg	
108-88-3	Toluene	64100	3200	1200	ug/kg	
1330-20-7	Xylene (total)	4900000 [b]	32000	5900	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Run# 3	Limits
1868-53-7	Dibromofluoromethane	102%	98%	103%	67-131%
17060-07-0	1,2-Dichloroethane-D4	100%	99%	101%	66-130%
2037-26-5	Toluene-D8	110%	113%	112%	76-125%
460-00-4	4-Bromofluorobenzene	97%	104%	101%	53-142%

(a) Result is from Run# 2
(b) Result is from Run# 3

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	I-7 (10-11)		
Lab Sample ID:	JA94117-3	**Date Sampled:**	12/06/11
Matrix:	SO - Soil	**Date Received:**	12/08/11
Method:	SW846-8015 (DAI)	**Percent Solids:**	85.9
Project:	BMSMC, Building 5 Area, PR		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GH85774.D	1	12/09/11	XPL	n/a	n/a	GGH3918
Run #2	GH85767.D	1	12/09/11	XPL	n/a	n/a	GGH3918

	Initial Weight
Run #1	0.50 g
Run #2	5.0 g

CAS No.	Compound	Result	RL	MDL	Units	Q
67-63-0	Isopropyl Alcohol	500000	1200	440	ug/kg	
67-56-1	Methanol	1050000	2300	600	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
111-27-3	Hexanol	133%	367% [a]	58-137%
111-27-3	Hexanol	133%	262% [a]	58-137%

(a) Outside control limits due to matrix interference.

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	I-8 (14-15)		
Lab Sample ID:	JA94117-4	**Date Sampled:**	12/07/11
Matrix:	SO - Soil	**Date Received:**	12/08/11
Method:	SW846 8260B SW846 5035	**Percent Solids:**	84.7
Project:	BMSMC, Building 5 Area, PR		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y118403.D	1	12/12/11	RS	12/09/11 09:00	n/a	VY5058
Run #2							

	Initial Weight
Run #1	4.9 g
Run #2	

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	15.0	12	8.0	ug/kg	
71-43-2	Benzene	1.5	1.2	0.16	ug/kg	
100-41-4	Ethylbenzene	ND	1.2	0.18	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	6.0	3.2	ug/kg	
108-88-3	Toluene	ND	1.2	0.46	ug/kg	
1330-20-7	Xylene (total)	2.9	1.2	0.22	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	91%		67-131%
17060-07-0	1,2-Dichloroethane-D4	90%		66-130%
2037-26-5	Toluene-D8	97%		76-125%
460-00-4	4-Bromofluorobenzene	95%		53-142%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	I-8 (14-15)		
Lab Sample ID:	JA94117-4	**Date Sampled:**	12/07/11
Matrix:	SO - Soil	**Date Received:**	12/08/11
Method:	SW846-8015 (DAI)	**Percent Solids:**	84.7
Project:	BMSMC, Building 5 Area, PR		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GH85768.D	1	12/09/11	XPL	n/a	n/a	GGH3918
Run #2							

	Initial Weight
Run #1	5.1 g
Run #2	

CAS No.	Compound	Result	RL	MDL	Units	Q
67-63-0	Isopropyl Alcohol	ND	120	44	ug/kg	
67-56-1	Methanol	ND	230	59	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
111-27-3	Hexanol	80%		58-137%
111-27-3	Hexanol	133%		58-137%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	I-8 (14-15) DUP		
Lab Sample ID:	JA94117-5	**Date Sampled:**	12/07/11
Matrix:	SO - Soil	**Date Received:**	12/08/11
Method:	SW846 8260B SW846 5035	**Percent Solids:**	85.8
Project:	BMSMC, Building 5 Area, PR		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y118404.D	1	12/12/11	RS	12/09/11 09:00	n/a	VY5058
Run #2							

	Initial Weight
Run #1	4.6 g
Run #2	

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	9.7	13	8.4	ug/kg	J
71-43-2	Benzene	1.3	1.3	0.17	ug/kg	
100-41-4	Ethylbenzene	ND	1.3	0.19	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	6.3	3.3	ug/kg	
108-88-3	Toluene	ND	1.3	0.48	ug/kg	
1330-20-7	Xylene (total)	0.88	1.3	0.23	ug/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	91%		67-131%
17060-07-0	1,2-Dichloroethane-D4	91%		66-130%
2037-26-5	Toluene-D8	97%		76-125%
460-00-4	4-Bromofluorobenzene	94%		53-142%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID:	I-8 (14-15) DUP		
Lab Sample ID:	JA94117-5	**Date Sampled:**	12/07/11
Matrix:	SO - Soil	**Date Received:**	12/08/11
Method:	SW846-8015 (DAI)	**Percent Solids:**	85.8
Project:	BMSMC, Building 5 Area, PR		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GH85769.D	1	12/09/11	XPL	n/a	n/a	GGH3918
Run #2							

	Initial Weight
Run #1	5.0 g
Run #2	

CAS No.	Compound	Result	RL	MDL	Units	Q
67-63-0	Isopropyl Alcohol	ND	120	44	ug/kg	
67-56-1	Methanol	ND	230	60	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
111-27-3	Hexanol	85%		58-137%
111-27-3	Hexanol	104%		58-137%

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ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	I-9 (8.5-9.5)		
Lab Sample ID:	JA94117-6	**Date Sampled:**	12/07/11
Matrix:	SO - Soil	**Date Received:**	12/08/11
Method:	SW846 8260B SW846 5035	**Percent Solids:**	76.5
Project:	BMSMC, Building 5 Area, PR		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y118384.D	1	12/10/11	RS	12/09/11 09:00	n/a	VY5057
Run #2	D190280.D	1	12/13/11	ET	12/09/11 09:00	n/a	VD7746

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.5 g		
Run #2	5.6 g	5.0 ml	100 ul

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	12	7.9	ug/kg	
71-43-2	Benzene	0.48	1.2	0.16	ug/kg	J
100-41-4	Ethylbenzene	52.3	1.2	0.18	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.9	3.1	ug/kg	
108-88-3	Toluene	ND	1.2	0.45	ug/kg	
1330-20-7	Xylene (total)	2660 [a]	74	14	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	92%	101%	67-131%
17060-07-0	1,2-Dichloroethane-D4	94%	100%	66-130%
2037-26-5	Toluene-D8	96%	112%	76-125%
460-00-4	4-Bromofluorobenzene	92%	100%	53-142%

(a) Result is from Run# 2

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ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest LabLink@649183 09:01 19-Dec-2011

Report of Analysis

Client Sample ID:	I-9 (8.5-9.5)		
Lab Sample ID:	JA94117-6	**Date Sampled:**	12/07/11
Matrix:	SO - Soil	**Date Received:**	12/08/11
Method:	SW846-8015 (DAI)	**Percent Solids:**	76.5
Project:	BMSMC, Building 5 Area, PR		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GH85772.D	1	12/09/11	XPL	n/a	n/a	GGH3918
Run #2							

	Initial Weight
Run #1	5.0 g
Run #2	

CAS No.	Compound	Result	RL	MDL	Units	Q
67-63-0	Isopropyl Alcohol	ND	130	50	ug/kg	
67-56-1	Methanol	ND	260	67	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
111-27-3	Hexanol	85%		58-137%
111-27-3	Hexanol	98%		58-137%

COLEGIO DE QUÍMICOS DE PUERTO RICO
Rafael Infante Méndez
1888
QUÍMICO LICENCIADO

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TB 120711		
Lab Sample ID:	JA94117-7	**Date Sampled:**	12/07/11
Matrix:	AQ - Trip Blank Soil	**Date Received:**	12/08/11
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	BMSMC, Building 5 Area, PR		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4B13607.D	1	12/12/11	RS	n/a	n/a	V4B588
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	7.6	ug/l	
71-43-2	Benzene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.21	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	1.2	ug/l	J
108-88-3	Toluene	ND	1.0	0.15	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.17	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	97%		77-120%
17060-07-0	1,2-Dichloroethane-D4	92%		70-127%
2037-26-5	Toluene-D8	92%		79-120%
460-00-4	4-Bromofluorobenzene	85%		76-118%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID:	TB 120711		
Lab Sample ID:	JA94117-7	**Date Sampled:**	12/07/11
Matrix:	AQ - Trip Blank Soil	**Date Received:**	12/08/11
Method:	SW846-8015 (DAI)	**Percent Solids:**	n/a
Project:	BMSMC, Building 5 Area, PR		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GH85777.D	1	12/09/11	XPL	n/a	n/a	GGH3919
Run #2							

CAS No.	Compound	Result	RL	MDL	Units	Q
67-63-0	Isopropyl Alcohol	ND	100	30	ug/l	
67-56-1	Methanol	ND	200	46	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
111-27-3	Hexanol	97%		48-150%
111-27-3	Hexanol	95%		48-150%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

PN 1

SLL
STB

CHAIN OF CUSTODY

PAGE 1 OF 1

ACCUTEST Laboratories

2235 Route 130, Dayton, NJ 08810
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FEDEX Tracking # 873744211936

Bottle Order Control #

Accutest Job # JA94117

Client / Reporting Information	Project Information	Requested Analysis (see TEST CODE sheet)	Matrix Codes
Company Name: Anderson Mulholland Assoc., Inc.	Project Name: Bristol-Myers Squibb, Humacao, PR	Ethylbenzene, Toluene, Xylene, MEK, Acetone by 8260B; Methanol and TPA by 5015B; % Solids	DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL - Sludge; SED - Sediment; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid; WP - Wipe; FB - Field Blank; EB - Equipment Blank; RB - Rinse Blank; TB - Trip Blank
Street Address: 110 Corporate Park	Street:		
City / State / Zip: White Plains, NY 10604	City / State:	Billing Information (If different from Report to): Company Name:	
Project Contact / E-mail: Terry Taylor	Project #: Building 5	Street Address:	
Phone # / Fax #: 914-251-0400, Ext. 309	Client Purchase Order #:	City / State / Zip:	
Sampler(s) Name(s) / Phone #: Terry Taylor	Project Manager:	Attention:	

Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	Number of preserved Bottles: HCl	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	Ethylbenzene, Toluene, Xylene, MEK, Acetone by 8260B	Methanol and TPA by 5015B	% Solids	LAB USE ONLY
-1	I-3 (5-6)		12/6/11	1350	TT	Soil	5				2			3	X	X	X	EST
-2	I-2 (10-10.5)			1450			5				2			3	X	X	X	~~1966~~
-3	I-7 (10-11)			1650			5				2			3	X	X	X	~~4610~~
-4	I-8 (14-15)		12/7/11	1015			5				2			3	X	X	X	1405
-5	I-8 (14-15) DUP			1015			5				2			3	X	X	X	4972
-6	I-9 (8.5-9.5)			1105			5				2			3	X	X	X	816
-7	TB 120711			1105	Lab	Liquid	2	2							X	X		

12/8/11

Turnaround Time (Business days)

- [ ] Std. 15 Business Days
- [ ] Std. 10 Business Days (by Contract only)
- [ ] 10 Day RUSH
- [ ] 5 Day RUSH
- [x] 3 Day EMERGENCY
- [ ] 2 Day EMERGENCY
- [ ] 1 Day EMERGENCY

Emergency & Rush T/A data available VIA Labtrk

Approved By (Accutest PM): / Date:

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] FULLT1 (Level 3+4)
- [ ] NJ Reduced
- [ ] Commercial "C"
- [ ] NYASP Category A
- [ ] NYASP Category B
- [ ] State Forms
- [ ] EDD Format
- [ ] Other

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary
NJ Reduced = Results + QC Summary + Partial Raw data

Comments / Special Instructions

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* pulled 6/13/11 @ 0800 (AD 12/8/11

Sample Custody must be documented below each time samples change possession, including courier delivery.

	Relinquished by:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1		12/7/11 1200	FEDEX	FEDEX	12/8/11 1900	
2						
3	Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
4						
5	Relinquished by:	Date Time:	Received By:	Custody Seal # 434 [x] Intact [ ] Not Intact	Preserved where applicable: X	On Ice: X Cooler Temp: 3.0°C

B

DATA REVIEW WORKSHEETS

Project Number:____JA94117_____
Date:____12/06-07/2011_____

REVIEW OF VOLATILE ORGANIC PACKAGE

The following guidelines for evaluating volatile organics were created to delineate required validation actions. This document will assist the reviewer in using professional judgment to make more informed decision and in better serving the needs of the data users. The sample results were assessed according to USEPA data validation guidance documents in the following order of precedence: USEPA Region 2, SOP HW-24, Validating Volatile Organic Compounds by GC/MS, SW-846 Method 8260B (August, 2009-Revision 2), the USEPA National Functional Guidelines for Low/Medium Concentration Organic Data Review (SOW SOM01.2 SOP HW-33, August 2009 – Revision 2), the USEPA National Functional Guidelines for Organic Data Review for Low Concentration (SOP HW-13, August, 2009-Revision 3). Also, QC criteria from "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods SW-846 (Final Update IV, December 1998)," specifically for Methods 8000/8015 are utilized. The QC criteria and data validation actions listed on the data review worksheets are from the primary guidance document, unless otherwise noted.
The hardcopied (laboratory name) _Accutest_____ data package received has been reviewed and the quality control and performance data summarized. The data review for VOCs included:

Lab. Project/SDG No.: __JA94117_____ Sample matrix: ___Soil_____
No. of Samples: _____7_____

Trip blank No.: ____JA94117-7_____
Field blank No.: _____-_____
Equipment blank No.:__-_____
Field duplicate No.:__JA94117-4/-5_____

___X___ Data Completeness
___X___ Holding Times
___N/A_ GC/MS Tuning
___N/A_ Internal Standard Performance
___X___ Blanks
___X___ Surrogate Recoveries
___X___ Matrix Spike/Matrix Spike Duplicate
___X___ Laboratory Control Spikes
___X___ Field Duplicates
___X___ Calibrations
___X___ Compound Identifications
___X___ Compound Quantitation
___X___ Quantitation Limits

Overall Comments:_IPA_and_Methanol_by_SW846-8015_(DAI)_____

Definition of Qualifiers:
J- Estimated results
U- Compound not detected
R- Rejected data
UJ- Estimated nondetect

Reviewer: Rafael DeLaut
Date:__12/20/2011_____

DATA REVIEW WORKSHEETS

DATA COMPLETENESS

MISSING INFORMATION	DATE LAB. CONTACTED	DATE RECEIVED

All criteria were met __X__
Criteria were not met
and/or see below _____

HOLDING TIMES
The objective of this parameter is to ascertain the validity of the results based on the holding time of the sample from time of collection to the time of analysis.

Complete table for all samples and note the analysis and/or preservation not within criteria

SAMPLE ID	DATE SAMPLED	DATE ANALYZED	pH	ACTION
All samples analyzed within the recommended method holding time				

Criteria

Aqueous samples – 14 days from sample collection for preserved samples (pH $\leq$ 2, 4°C), no air bubbles.
Aqueous samples – 7 days from sample collection for unpreserved samples, 4°C, no air bubbles.
Soil samples- 7 days from sample collection.
Cooler temperature (Criteria: 4 $\pm$ 2 °C): 3°C - OK

Actions

If the VOCs vial(s) have air bubbles, estimate positive results (J) and reject nondetects (R).
If the % solids of soil samples is 10-50%, estimates positive results (J) and nondetects (UJ)
If the % solid of soil samples is < 10%, estimate positive results (J) and reject nondetects (R).
If holding times are exceeded but < 14 days beyond criteria, estimate positive results (J) and nondetects (UJ).
If holding times are exceeded but < 28 days beyond criteria, estimate positive results (J) and reject nondetects (R).
If holding times are grossly exceeded (> 28 days beyond criteria), reject all results (R).
If samples were not iced or if the ice were melted (> 10°C), estimate positive results (J) and nondetects (UJ).

All criteria were met __N/A___
Criteria were not met see below _____

GC/MS TUNING

The assessment of the tuning results is to determine if the sample instrumentation is within the standard tuning QC limits

__N/A_ The BFB performance results were reviewed and found to be within the specified criteria.

__N/A_ BFB tuning was performed for every 12 hours of sample analysis.

If no, use professional judgment to determine whether the associated data should be accepted, qualified or rejected.

List the samples affected:
_____

If mass calibration is in error, all associated data are rejected.

All criteria were met __X__
Criteria were not met
and/or see below _____

CALIBRATION VERIFICATION

Compliance requirements for satisfactory instrument calibration are established to ensure that the instrument is capable of producing and maintaining acceptable quantitative data.

Date of initial calibration:_____11/12/11_____
Dates of continuing calibration:_12/09/11_____
Instrument ID numbers:_____GCGH_____
Matrix/Level:__Aqueous/low_____

DATE	LAB FILE ID#	CRITERIA OUT RFs, %RSD, **%D**, r	COMPOUND	SAMPLES AFFECTED
Initial and continuing calibration meet method performance criteria				

Criteria

All RFs must be > 0.05 regardless of method requirements for SPCC.
All %RSD must be $\leq$ 15 % regardless of method requirements for CCC.
All %Ds must be $\leq$ 20% regardless of method requirements for CCC.
It should be noted that Region 2 SOP HW-24 does not specify criterion for the curve correlation coefficient (r). A limit for r of $\geq$ 0.995 has therefore been utilized as professional judgment.

Actions

If any compound has an initial RF or a continuing RF of < 0.05, estimate positive results (J) and reject nondetects (R), regardless of method requirements.
If any compound has a %RSD > 15%, estimate positive results (J) and use professional judgment to qualify nondetects.
If any compound has a %RSD > 90%, estimate positive results (J) and reject nondetects (R).
If any compound has a % D > 20%, estimate positive results (J) and reject nondetects (R).
If any compound has a % D > 20%, estimate positive results (J) and nondetects (UJ).
If any compound has a % D > 90%, estimate positive results (J) and reject nondetects (R).
If any compound has r > 0.995, estimate positive results and nondetects.

A separate worksheet should be filled for each initial curve

All criteria were met __X__
Criteria were not met
and/or see below _____

V A. BLANK ANALYSIS RESULTS (Sections 1 & 2)

The assessment of the blank analysis results is to determine the existence and magnitude of contamination problems. The criteria for evaluation of blanks apply only to blanks associated with the samples, including trip, equipment, and laboratory blanks. If problems with any blanks exist, all data associated with the case must be carefully evaluated to determine whether or not there is an inherent variability in the data for the case, or if the problem is an isolated occurrence not affecting other data.

List the contamination in the blanks below. High and low levels blanks must be treated separately.

Laboratory blanks

DATE ANALYZED	LAB ID	LEVEL/ MATRIX	COMPOUND	CONCENTRATION UNITS
____All_method_blank_meeth_method_specific_criteria_____				

Field/Equipment/Trip blank

DATE ANALYZED	LAB ID	LEVEL/ MATRIX	COMPOUND	CONCENTRATION UNITS
_No_target_analytes_detected_in_the_trip_blank_analyzed_with_this_data_package._____				
_No_field/equipment_blanks_analyzed_with_this_data_package_____				

All criteria were met __X__
Criteria were not met
and/or see below _____

V B. BLANK ANALYSIS RESULTS (Section 3)

Blank Actions

Action Levels (ALs) should be based upon the highest concentration of contaminant determined in any blank. Do not qualify any blank with another blank. The ALs for samples which have been diluted should be corrected for the sample dilution factor and/or % moisture, where applicable. No positive sample results should be reported unless the concentration of the compound in the samples exceeds the ALs:

ALs = 10x the amount of common contaminants (methylene chloride, acetone, 2-butanone, and toluene)
ALs = 5x for any other compounds

Specific actions are as follows:

If the concentration is < sample quantitation limit (SQL) and $\leq$ AL, report the compound as not detected (U) at the SQL.
If the concentration is $\geq$ SQL but $\leq$ AL, report the compound as not detected (U) at the reported concentration.
If the concentration is $\geq$ SQL and > AL, report the concentration unqualified.

Notes:

High and low level blanks must be treated separately
Compounds qualified "U" for blank contamination are still considered "hits" when qualifying for calibration criteria.

CONTAMINATION SOURCE/LEVEL	COMPOUND	CONC/UNITS	AL/UNITS	SQL	AFFECTED SAMPLES

All criteria were met _____
Criteria were not met
and/or see below __X__

SURROGATE SPIKE RECOVERIES

Laboratory performance of individual samples is established by evaluation of surrogate spike recoveries. All samples are spiked with surrogate compounds prior to sample analysis. The accuracy of the analysis is measured by the surrogate percent recovery. Since the effects of the sample matrix are frequently outside the control of the laboratory and may present relatively unique problems, the validation of data is frequently subjective and demands analytical experience and professional judgment.
List the percent recoveries (%Rs) which do not meet the criteria for surrogate recovery.
Matrix: solid/aqueous

SAMPLE ID	SURROGATE COMPOUND				ACTION
	~~1,2-DCA~~	~~DBFM~~	~~TOL-d8~~	~~BFB~~	
_JA94117-3	367/262_%				No_action_
___Surrogate_-_Hexanol					
_Recoveries_OK_in_run_#1					

QC Limits* (Aqueous)
_____LL_to_UL___ ____to_____ ___to_____ ___to_____ ___to_____
QC Limits* (Solid-Low)
_____LL_to_UL___ _58_to_137_ ___to_____ ___to_____ ___to_____
QC Limits* (Solid-Med)
_____LL_to_UL___ ____to_____ ___to_____ ___to_____ ___to_____

1,2-DCA = 1,2-Dichloromethane-d4
DBFM = Dibromofluoromethane
TOL-d8 = Toluene-d8
BFB = Bromofluorobenzene

* QC limits are laboratory in-house performance criteria, LL = lower limit, UL = upper limit.
* If QC limits are not available, use limits of 80 – 120 % for aqueous and 70 – 130 % for solid samples.

Actions:

QUALITY	%R < 10%	%R = 10% - LL	%R > UL
Positive results	J	J	J
Nondetects results	R	UJ	Accept

Surrogate action should be applied:
If one or more surrogate in the VOC fraction is out of specification, but has a recovery of > 10%.

If any one surrogate in a fraction shows < 10 % recovery.

All criteria were met __X___
Criteria were not met
and/or see below _____

VII. A MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD)

This data is generated to determine long term precision and accuracy in the analytical method for various matrices. This data alone cannot be used to evaluate the precision and accuracy of individual samples. If any % R in the MS or MSD falls outside the designated range, the reviewer should determine if there are matrix effects, i.e. LCS data are within the QC limits but MS/MSD data are outside QC limit.

1. MS/MSD Recoveries and Precision Criteria

The laboratory should use one MS and a duplicate analysis of an unspiked field sample if target analytes are expected in the sample. If target analytes are not expected, MS/MSD should be analyzed. List the %Rs, RPD of the compounds which do not meet the criteria.

Sample ID:__JA93968-1_____ Matrix/Level:___SOIL_____

MS OR MSD	COMPOUND	% R	RPD	QC LIMITS	ACTION
__MS/MSD_recoveries_and_RPD_within_laboratory_control_limits_____					

* QC limits are laboratory in-house performance criteria, LL = lower limit, UL = upper limit.
* If QC limits are not available, use limits of 70 – 130 %.

Actions:

QUALITY	%R < LL	%R > UL
Positive results	J	J
Nondetects results	R	Accept

MS/MSD criteria apply only to the unspiked sample, its dilutions, and the associated MS/MSD samples:

If the % R for the affected compounds were < LL (or 70 %), qualify positive results (J) and nondetects (UJ).
If the % R for the affected compounds were > UL (or 130 %), only qualify positive results (J).
If 25 % or more of all MS/MSD %R were < LL (or 70 %) or if two or more MS/MSD %Rs were < 10%, qualify all positive results (J) and reject nondetects (R).

A separate worksheet should be used for each MS/MSD pair.

All criteria were met __X__
Criteria were not met
and/or see below _____

VII. B MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MS/MSD – Unspiked Compounds

It should be noted that Region 2 SOP HW-24 does not specify a MS/MSD criteria for the unspiked compounds in the sample. A %RSD of < 50% has therefore been utilized as professional judgment.

If all target analytes were spiked in the MS/MSD, this review element is not applicable.

List the %RSD of the compounds which do not meet the criteria.

Sample ID:_____ Matrix/Level/Unit:_____

COMPOUND	SAMPLE CONC.	MS CONC.	MSD CONC.	% RSD	ACTION

Actions:

* If the % RSD > 50, qualify the positive result in the unspiked samples as estimated (J).
* If the % RSD is not calculated (NC) due to nondetected value, use professional judgment to qualify the data.

All criteria were met __X__
Criteria were not met
and/or see below _____

VIII. LABORATORY CONTROL SAMPLE (LCS) ANALYSIS

This data is generated to determine accuracy of the analytical method for various matrices.

1. LCS Recoveries Criteria

Where LCS spiked with the same analyte at the same concentrations as the MS/MSD? Yes or No. If no make note in data review memo.
List the %R of compounds which do not meet the criteria

LCS ID COMPOUND % R QC LIMIT

___Recoveries_within_laboratory_control_limits_____

* QC limits are laboratory in-house performance criteria, LL = lower limit, UL = upper limit.
* If QC limits are not available, use limits of 70 – 130 %.

Actions:

QUALITY	%R < LL	%R > UL
Positive results	J	J
Nondetects results	R	Accept

All analytes in the associated sample results are qualified for the following criteria.

If 25 % of the LCS recoveries were < LL (or 70 %), qualify all positive results (j) and reject nondetects (R).
If two or more LCS were below 10 %, qualify all positive results as (J) and reject nondetects (R).

2. Frequency Criteria:

Where LCS analyzed at the required frequency and for each matrix? Yes or No.
If no, the data may be affected. Use professional judgment to determine the severity of the effect and qualify data accordingly. Discuss any actions below and list the samples affected.

All criteria were met __X__
Criteria were not met
and/or see below _____

IX. FIELD DUPLICATE PRECISION

Sample IDs: __JA94117-4/-5_____ Matrix:_SOIL_____

Field duplicates samples may be taken and analyzed as an indication of overall precision. These analyses measure both field and lab precision; therefore, the results may have more variability than laboratory duplicates which only laboratory performance. It is also expected that soil duplicate results will have a greater variance than water matrices due to difficulties associated with collecting identical field duplicate samples.

The project QAPP should be reviewed for project-specific information.
Suggested criteria: RPD ± 30% for aqueous samples, RPD ± 50 % for solid samples. If both samples and duplicate are <5 SQL, the RPD criteria is doubled.

COMPOUND	SQL	SAMPLE CONC.	DUPLICATE CONC.	RPD	ACTION
RPD within laboratory and generally acceptable control limits					

Actions:

Qualify as estimated positive results (J) and nondetects (UJ) for the compound that exceeded the above criteria. For organics, only the sample and duplicate will be qualified.

If an RPD cannot be calculated because one or both of the sample results is not detected, the following actions apply:

If one sample result is not detected and the other is greater than 5x the SQL qualify (J/UJ).

If one sample value is not detected and the other is greater than 5x the SQL and the SQLs for the sample and duplicate are significantly different, use professional judgment to determine if qualification is appropriate.

If one sample value is not detected and the other is less than 5x, use professional judgment to determine if qualification is appropriate.

If both sample and duplicate results are not detected, no action is needed.

All criteria were met __N/A__
Criteria were not met
and/or see below _____

X. INTERNAL STANDARD PERFORMANCE

The assessment of the internal standard (IS) parameter is used to assist the data reviewer in determining the condition of the analytical instrumentation.

List the internal standard area of samples which do not meet the criteria.

* Area of +100% or -50% of the IS area in the associated calibration standard.
* Retention time (RT) within 30 seconds of the IS area in the associated calibration standard.

DATE	SAMPLE ID	IS OUT	IS AREA	ACCEPTABLE RANGE	ACTION

Actions:

1. IS actions should be applied to the compound quantitated with the out-of-control ISs

QUALITY	IS AREA < -25%	IS AREA = -25 % TO – 50%	IS AREA > + 100%
Positive results	J	J	J
Nondetected results	R	UJ	ACCEPT

2. If a IS retention time varies more than 30 seconds, the chromatographic profile for that sample must be examined to determine if any false positive or negative exists. For shifts of a large magnitude, the reviewer may consider partial or total rejection of the data for the sample fraction.

All criteria were met __X__
Criteria were not met
and/or see below _____

XII. SAMPLE QUANTITATION

The sample quantitation evaluation is to verify laboratory quantitation results. In the space below, please show a minimum of one sample calculation:

JA94117-3

Methanol RF = 13.07

[ ] = (8776373)/(13.07)

= 671,490 ppb OK

All criteria were met _X_
Criteria were not met
and/or see below _____

XII. QUANTITATION LIMITS

A. Dilution performed

SAMPLE ID	DILUTION FACTOR	REASON FOR DILUTION

B. Percent Solids

List samples which have ≤ 50 % solids

_____
_____
_____
_____
_____
_____

Actions:

If the % solids of a soil sample is 10-50%, estimate positive results (J) and nondetects (UJ)

If the % solids of a soil sample is < 10%, estimate positive results (J) and reject nondetects (R)

DATA REVIEW WORKSHEETS

Project Number:____JA94117_____
Date:____12/06-07/2011_____

REVIEW OF VOLATILE ORGANIC PACKAGE

The following guidelines for evaluating volatile organics were created to delineate required validation actions. This document will assist the reviewer in using professional judgment to make more informed decision and in better serving the needs of the data users. The sample results were assessed according to USEPA data validation guidance documents in the following order of precedence: USEPA Region 2, SOP HW-24, Validating Volatile Organic Compounds by GC/MS, SW-846 Method 8260B (August, 2009-Revision 2), the USEPA National Functional Guidelines for Low/Medium Concentration Organic Data Review (SOW SOM01.2 SOP HW-33, August 2009 – Revision 2), the USEPA National Functional Guidelines for Organic Data Review for Low Concentration (SOP HW-13, August, 2009-Revision 3). Also, QC criteria from "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods SW-846 (Final Update IV, December 1998)," specifically for Methods 8000/8260B are utilized. The QC criteria and data validation actions listed on the data review worksheets are from the primary guidance document, unless otherwise noted.
The hardcopied (laboratory name) _Accutest_____ data package received has been reviewed and the quality control and performance data summarized. The data review for VOCs included:

Lab. Project/SDG No.: __JA94117_____ Sample matrix: ___Soil_____
No. of Samples: _____7_____

Trip blank No.: ____JA94117-7_____
Field blank No.: ____-_____
Equipment blank No.:_-_____
Field duplicate No.:__-_____

___X___ Data Completeness
___X___ Holding Times
___X___ GC/MS Tuning
___X___ Internal Standard Performance
___X___ Blanks
___X___ Surrogate Recoveries
___X___ Matrix Spike/Matrix Spike Duplicate
___X___ Laboratory Control Spikes
___X___ Field Duplicates
___X___ Calibrations
___X___ Compound Identifications
___X___ Compound Quantitation
___X___ Quantitation Limits

Overall Comments:_Selected_VOC's_by_SW846-8260B_____
_____

Definition of Qualifiers:
J- Estimated results
U- Compound not detected
R- Rejected data
UJ- Estimated nondetect

Reviewer:_____
Date:__12/19/2011_____

DATA REVIEW WORKSHEETS

DATA COMPLETENESS

MISSING INFORMATION	DATE LAB. CONTACTED	DATE RECEIVED

All criteria were met __X___
Criteria were not met
and/or see below _____

HOLDING TIMES
The objective of this parameter is to ascertain the validity of the results based on the holding time of the sample from time of collection to the time of analysis.

Complete table for all samples and note the analysis and/or preservation not within criteria

SAMPLE ID	DATE SAMPLED	DATE ANALYZED	pH	ACTION
All samples analyzed within the recommended method holding time				

Criteria

Aqueous samples – 14 days from sample collection for preserved samples (pH $\leq$ 2, 4°C), no air bubbles.
Aqueous samples – 7 days from sample collection for unpreserved samples, 4°C, no air bubbles.
Soil samples- 7 days from sample collection.
Cooler temperature (Criteria: 4 $\pm$ 2 °C): 3°C - OK

Actions

If the VOCs vial(s) have air bubbles, estimate positive results (J) and reject nondetects (R).
If the % solids of soil samples is 10-50%, estimates positive results (J) and nondetects (UJ)
If the % solid of soil samples is < 10%, estimate positive results (J) and reject nondetects (R).
If holding times are exceeded but < 14 days beyond criteria, estimate positive results (J) and nondetects (UJ).
If holding times are exceeded but < 28 days beyond criteria, estimate positive results (J) and reject nondetects (R).
If holding times are grossly exceeded (> 28 days beyond criteria), reject all results (R).
If samples were not iced or if the ice were melted (> 10°C), estimate positive results (J) and nondetects (UJ).

All criteria were met __X___
Criteria were not met see below _____

GC/MS TUNING

The assessment of the tuning results is to determine if the sample instrumentation is within the standard tuning QC limits

__X___ The BFB performance results were reviewed and found to be within the specified criteria.

__X___ BFB tuning was performed for every 12 hours of sample analysis.

If no, use professional judgment to determine whether the associated data should be accepted, qualified or rejected.

List the samples affected:
_____

If mass calibration is in error, all associated data are rejected.

All criteria were met ____
Criteria were not met
and/or see below _X_

CALIBRATION VERIFICATION

Compliance requirements for satisfactory instrument calibration are established to ensure that the instrument is capable of producing and maintaining acceptable quantitative data.

Date of initial calibration:_____09/14/11_____10/28/11_____11/08/11_____
Dates of continuing calibration:_12/12/11_____12/12/11_12/13/11____12/10/11__12/12/11___
Instrument ID numbers:_____GCMS4B_____GCMSD_____GCMSY_____
Matrix/Level:__Aqueous/low_____

DATE	LAB FILE ID#	CRITERIA OUT RFs, %RSD, **%D**, r	COMPOUND	SAMPLES AFFECTED
12/12/2011	cc435-20	23.6	MIBK	JA94117-7

Criteria

All RFs must be > 0.05 regardless of method requirements for SPCC.
All %RSD must be ≤ 15 % regardless of method requirements for CCC.
All %Ds must be ≤ 20% regardless of method requirements for CCC.
It should be noted that Region 2 SOP HW-24 does not specify criterion for the curve correlation coefficient (r). A limit for r of ≥ 0.995 has therefore been utilized as professional judgment.

Actions

If any compound has an initial RF or a continuing RF of < 0.05, estimate positive results (J) and reject nondetects (R), regardless of method requirements.
If any compound has a %RSD > 15%, estimate positive results (J) and use professional judgment to qualify nondetects.
If any compound has a %RSD > 90%, estimate positive results (J) and reject nondetects (R).
If any compound has a % D > 20%, estimate positive results (J) and reject nondetects (R).
If any compound has a % D > 20%, estimate positive results (J) and nondetects (UJ).
If any compound has a % D > 90%, estimate positive results (J) and reject nondetects (R).
If any compound has r > 0.995, estimate positive results and nondetects.

A separate worksheet should be filled for each initial curve

All criteria were met __X__
Criteria were not met
and/or see below _____

V A. BLANK ANALYSIS RESULTS (Sections 1 & 2)

The assessment of the blank analysis results is to determine the existence and magnitude of contamination problems. The criteria for evaluation of blanks apply only to blanks associated with the samples, including trip, equipment, and laboratory blanks. If problems with any blanks exist, all data associated with the case must be carefully evaluated to determine whether or not there is an inherent variability in the data for the case, or if the problem is an isolated occurrence not affecting other data.

List the contamination in the blanks below. High and low levels blanks must be treated separately.

Laboratory blanks

DATE ANALYZED	LAB ID	LEVEL/ MATRIX	COMPOUND	CONCENTRATION UNITS
All_method_blank_meeth_method_specific_criteria				

Field/Equipment/Trip blank

DATE ANALYZED	LAB ID	LEVEL/ MATRIX	COMPOUND	CONCENTRATION UNITS
No_target_analytes_detected_in_the_trip_blank_analyzed_with_this_data__package.				
No_ field/equipment_blanks_analyzed_with_this_data_package.				

All criteria were met __X__
Criteria were not met
and/or see below _____

V B. BLANK ANALYSIS RESULTS (Section 3)

Blank Actions

Action Levels (ALs) should be based upon the highest concentration of contaminant determined in any blank. Do not qualify any blank with another blank. The ALs for samples which have been diluted should be corrected for the sample dilution factor and/or % moisture, where applicable. No positive sample results should be reported unless the concentration of the compound in the samples exceeds the ALs:

ALs = 10x the amount of common contaminants (methylene chloride, acetone, 2-butanone, and toluene)
ALs = 5x for any other compounds

Specific actions are as follows:

If the concentration is < sample quantitation limit (SQL) and ≤ AL, report the compound as not detected (U) at the SQL.
If the concentration is ≥ SQL but ≤ AL, report the compound as not detected (U) at the reported concentration.
If the concentration is ≥ SQL and > AL, report the concentration unqualified.

Notes:

High and low level blanks must be treated separately
Compounds qualified "U" for blank contaminations are still considered "hits" when qualifying for calibration criteria.

CONTAMINATION SOURCE/LEVEL	COMPOUND	CONC/UNITS	AL/UNITS	SQL	AFFECTED SAMPLES

All criteria were met _____
Criteria were not met
and/or see below __x___

SURROGATE SPIKE RECOVERIES

Laboratory performance of individual samples is established by evaluation of surrogate spike recoveries. All samples are spiked with surrogate compounds prior to sample analysis. The accuracy of the analysis is measured by the surrogate percent recovery. Since the effects of the sample matrix are frequently outside the control of the laboratory and may present relatively unique problems, the validation of data is frequently subjective and demands analytical experience and professional judgment.
List the percent recoveries (%Rs) which do not meet the criteria for surrogate recovery.
Matrix: solid/aqueous

SAMPLE ID	SURROGATE COMPOUND				ACTION
	1,2-DCA	DBFM	TOL-d8	BFB	
_JA94077-1MS		23			No_action_
_JA94077-1MSD		28			No_action_

_All_surrogate_recoveries_within_laboratory_control_limits_____

QC Limits* (Aqueous)
_____LL_to_UL___ ____to_____ ___to_____ ___to_____ ___to_____
QC Limits* (Solid-Low)
_____LL_to_UL___ ____to_____ _67_to_137_ ___to_____ ___to_____
QC Limits* (Solid-Med)
_____LL_to_UL___ ____to_____ ___to_____ ___to_____ ___to_____

1,2-DCA = 1,2-Dichloromethane-d4 TOL-d8 = Toluene-d8
DBFM = Dibromofluoromethane BFB = Bromofluorobenzene

* QC limits are laboratory in-house performance criteria, LL = lower limit, UL = upper limit.
* If QC limits are not available, use limits of 80 – 120 % for aqueous and 70 – 130 % for solid samples.

Actions:

QUALITY	%R < 10%	%R = 10% - LL	%R > UL
Positive results	J	J	J
Nondetects results	R	UJ	Accept

Surrogate action should be applied:
If one or more surrogate in the VOC fraction is out of specification, but has a recovery of > 10%.
If any one surrogate in a fraction shows < 10 % recovery.

All criteria were met __X__
Criteria were not met
and/or see below _____

VII. A MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD)

This data is generated to determine long term precision and accuracy in the analytical method for various matrices. This data alone cannot be used to evaluate the precision and accuracy of individual samples. If any % R in the MS or MSD falls outside the designated range, the reviewer should determine if there are matrix effects, i.e. LCS data are within the QC limits but MS/MSD data are outside QC limit.

1. MS/MSD Recoveries and Precision Criteria

The laboratory should use one MS and a duplicate analysis of an unspiked field sample if target analytes are expected in the sample. If target analytes are not expected, MS/MSD should be analyzed. List the %Rs, RPD of the compounds which do not meet the criteria.

Sample ID:__JA94124-3_____	Matrix/Level:___SOIL_____
Sample ID:__JA94077-1_____	Matrix/Level:___SOIL_____
Sample ID:__JA94117-7_____	Matrix/Level:___AQUEOUS_____
Sample ID:__JA94117-1_____	Matrix/Level:___SOIL_____
Sample ID:__JA93637-1_____	Matrix/Level:___SOIL_____
Sample ID:__JA93776-3_____	Matrix/Level:___SOIL_____

MS OR MSD	COMPOUND	% R	RPD	QC LIMITS	ACTION
JA94124-3MS/-3MSD					
__MS_____	Ethylbenzene_____	172_____		20_-_144_____	Qualify _results_(J)
__MS_____	Toluene_____	146___ _____		29_-_138_____	Qualify_results_(J)

Affected sample: JA94117-6

* QC limits are laboratory in-house performance criteria, LL = lower limit, UL = upper limit.

* If QC limits are not available, use limits of 70 – 130 %. Actions:

QUALITY	%R < LL	%R > UL
Positive results	J	J
Nondetects results	R	Accept

MS/MSD criteria apply only to the unspiked sample, its dilutions, and the associated MS/MSD samples:

If the % R for the affected compounds were < LL (or 70 %), qualify positive results (J) and nondetects (UJ).
If the % R for the affected compounds were > UL (or 130 %), only qualify positive results (J).
If 25 % or more of all MS/MSD %R were < LL (or 70 %) or if two or more MS/MSD %Rs were < 10%, qualify all positive results (J) and reject nondetects (R).
A separate worksheet should be used for each MS/MSD pair.

All criteria were met __X__
Criteria were not met
and/or see below _____

IX. FIELD DUPLICATE PRECISION

Sample IDs: __JA94117-4/-5_____ Matrix:_SOIL_____

Field duplicates samples may be taken and analyzed as an indication of overall precision. These analyses measure both field and lab precision; therefore, the results may have more variability than laboratory duplicates which only laboratory performance. It is also expected that soil duplicate results will have a greater variance than water matrices due to difficulties associated with collecting identical field duplicate samples.

The project QAPP should be reviewed for project-specific information.
Suggested criteria: RPD ± 30% for aqueous samples, RPD ± 50 % for solid samples. If both samples and duplicate are <5 SQL, the RPD criteria is doubled.

COMPOUND	SQL	SAMPLE CONC.	DUPLICATE CONC.	RPD	ACTION
RPD within laboratory and generally acceptable control limits; except for Xylenes (Total); no action taken because one of the two concentrations was less than 5 X sample quantitation limit					

Actions:

Qualify as estimated positive results (J) and nondetects (UJ) for the compound that exceeded the above criteria. For organics, only the sample and duplicate will be qualified.

If an RPD cannot be calculated because one or both of the sample results is not detected, the following actions apply:

If one sample result is not detected and the other is greater than 5x the SQL qualify (J/UJ).

If one sample value is not detected and the other is greater than 5x the SQL and the SQLs for the sample and duplicate are significantly different, use professional judgment to determine if qualification is appropriate.

If one sample value is not detected and the other is less than 5x, use professional judgment to determine if qualification is appropriate.

If both sample and duplicate results are not detected, no action is needed.

All criteria were met __X__
Criteria were not met
and/or see below ___X___

IX. LABORATORY DUPLICATE PRECISION

Sample IDs: __JA94124-4_____ Matrix:_SOIL_____

Field duplicates samples may be taken and analyzed as an indication of overall precision. These analyses measure both field and lab precision; therefore, the results may have more variability than laboratory duplicates which only laboratory performance. It is also expected that soil duplicate results will have a greater variance than water matrices due to difficulties associated with collecting identical field duplicate samples.

The project QAPP should be reviewed for project-specific information.
Suggested criteria: RPD ± 30% for aqueous samples, RPD ± 50 % for solid samples. If both samples and duplicate are <5 SQL, the RPD criteria is doubled.

COMPOUND	SQL	SAMPLE CONC.	DUPLICATE CONC.	RPD	ACTION
Benzene	0.2	0.76	0.31	84	No action
Ethylbenzene	0.2	0.38	ND	200	No action

Actions:

Qualify as estimated positive results (J) and nondetects (UJ) for the compound that exceeded the above criteria. For organics, only the sample and duplicate will be qualified.

If an RPD cannot be calculated because one or both of the sample results is not detected, the following actions apply:

If one sample result is not detected and the other is greater than 5x the SQL qualify (J/UJ).

If one sample value is not detected and the other is greater than 5x the SQL and the SQLs for the sample and duplicate are significantly different, use professional judgment to determine if qualification is appropriate.

If one sample value is not detected and the other is less than 5x, use professional judgment to determine if qualification is appropriate.

If both sample and duplicate results are not detected, no action is needed.

All criteria were met __X__
Criteria were not met
and/or see below _____

X. INTERNAL STANDARD PERFORMANCE

The assessment of the internal standard (IS) parameter is used to assist the data reviewer in determining the condition of the analytical instrumentation.

List the internal standard area of samples which do not meet the criteria.

* Area of +100% or -50% of the IS area in the associated calibration standard.
* Retention time (RT) within 30 seconds of the IS area in the associated calibration standard.

DATE	SAMPLE ID	IS OUT	IS AREA	ACCEPTABLE RANGE	ACTION

_Internal_standard_area_within_laboratory_control_limits_____

Actions:

1. IS actions should be applied to the compound quantitated with the out-of-control ISs

QUALITY	IS AREA < -25%	IS AREA = -25 % TO – 50%	IS AREA > + 100%
Positive results	J	J	J
Nondetected results	R	UJ	ACCEPT

2. If a IS retention time varies more than 30 seconds, the chromatographic profile for that sample must be examined to determine if any false positive or negative exists. For shifts of a large magnitude, the reviewer may consider partial or total rejection of the data for the sample fraction.

All criteria were met __X__
Criteria were not met
and/or see below ____

XII. SAMPLE QUANTITATION

The sample quantitation evaluation is to verify laboratory quantitation results. In the space below, please show a minimum of one sample calculation:

JA94117-1

ACETONE RF = 0.064

[ ] = (61194)(50)/(280401)(0.064)

= 170.5 ppb OK

All criteria were met __X__
Criteria were not met
and/or see below _____

XII. QUANTITATION LIMITS

A. Dilution performed

SAMPLE ID	DILUTION FACTOR	REASON FOR DILUTION
JA94117-3	5 X	Several VOCs outside calibration range

B. Percent Solids

List samples which have ≤ 50 % solids

Actions:

If the % solids of a soil sample is 10-50%, estimate positive results (J) and nondetects (UJ)

If the % solids of a soil sample is < 10%, estimate positive results (J) and reject nondetects (R)